Power Quality Impacts of Airport GSE Charging Systems

Contract #: 100-98-001 **Project #:** 33
Contractor: Electric Power Research Institute (EPRI)
Subcontractors: Georgia Tech/National Electric Energy Testing Research & Applications Center (NEETRAC)
Project Amount: $91,500
Contractor Project Manager: Andra Michel (650) 855-2101
Commission Contract Manager: McKinley Addy (916) 657-0833
Status: Completed

Project Description:
This project will study the existing GSE charging systems at five airports (including four in California) to document the power quality characteristics of the systems and assess their impacts on the primary and secondary electric distribution systems that supply power to the airports and gate areas.

This project supports the PIER Program objective of:

- Improving energy cost/value.

Proposed Outcomes:

1. EPRI hosted monthly conference call meetings that brought together airport and utility participants, as well as representatives from the Energy Commission, EPRI, and the subcontractor, NEETRAC, for project status reporting and planning for future tasks. Minutes of each meeting were compiled and distributed to participants.
2. Task 1 (Data Collection) was completed. Data recorders were installed and data collected at three airports—San Francisco, Sacramento, and Orange County. Arrangements for data collection at airports in Los Angeles and Dallas/Fort Worth are ongoing. A report – Power Quality Characteristics of GSE Charging Systems – is in draft.
3. Task 2 (Model Development and Validation) is scheduled to be completed February 28, 2002. Task 3 (Case Studies A) is scheduled to be completed May 31, 2002. Tasks 4 (Case Studies B) and 5 (Technology Transfer) have not yet been funded by the Commission.

Actual Outcomes:

1. This study documented the characteristics of electric GSE charging systems at five airports (including four in California) and assessed their impacts on the secondary and primary electric distribution systems that supply power to the airports and their gate areas. The findings will help airport authorities to determine the least-costly, most energy efficient, and most reliable methods to supply electric power to airport gate areas. The findings are summarized in an EPRI technical report—*Power Quality Impacts of Airport Ground Support Equipment Charging Systems* (1007294).

Project Status:
The project has been completed.